

# universe

Jet Propulsion Laboratory

November 22, 2002  
Volume 32 Number 24

Inside

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| News Briefs . . . . . 2             | Space Flight Awareness honors . 4 |
| Special Events Calendar . . . . . 2 | Letters, Retirees . . . . . 4     |
| For the Record . . . . . 2          | Passings, Classifieds . . . . . 4 |

*h e m e*  
EARTH

## SeaWinds prepares for launch

By Mark Whalen

*JPL is preparing for the Dec. 14 launch of SeaWinds, an ocean-observing scatterometer that will fly aboard Japan's Advanced Earth Observing Satellite II (ADEOS-II). The mission, which also includes a partnership with the National Oceanic and Atmospheric Administration (NOAA), will measure surface wind speed and direction over 90 percent of the ice-free oceans daily. Project Manager Moshe Pniel provides an update on the mission and its goals.*

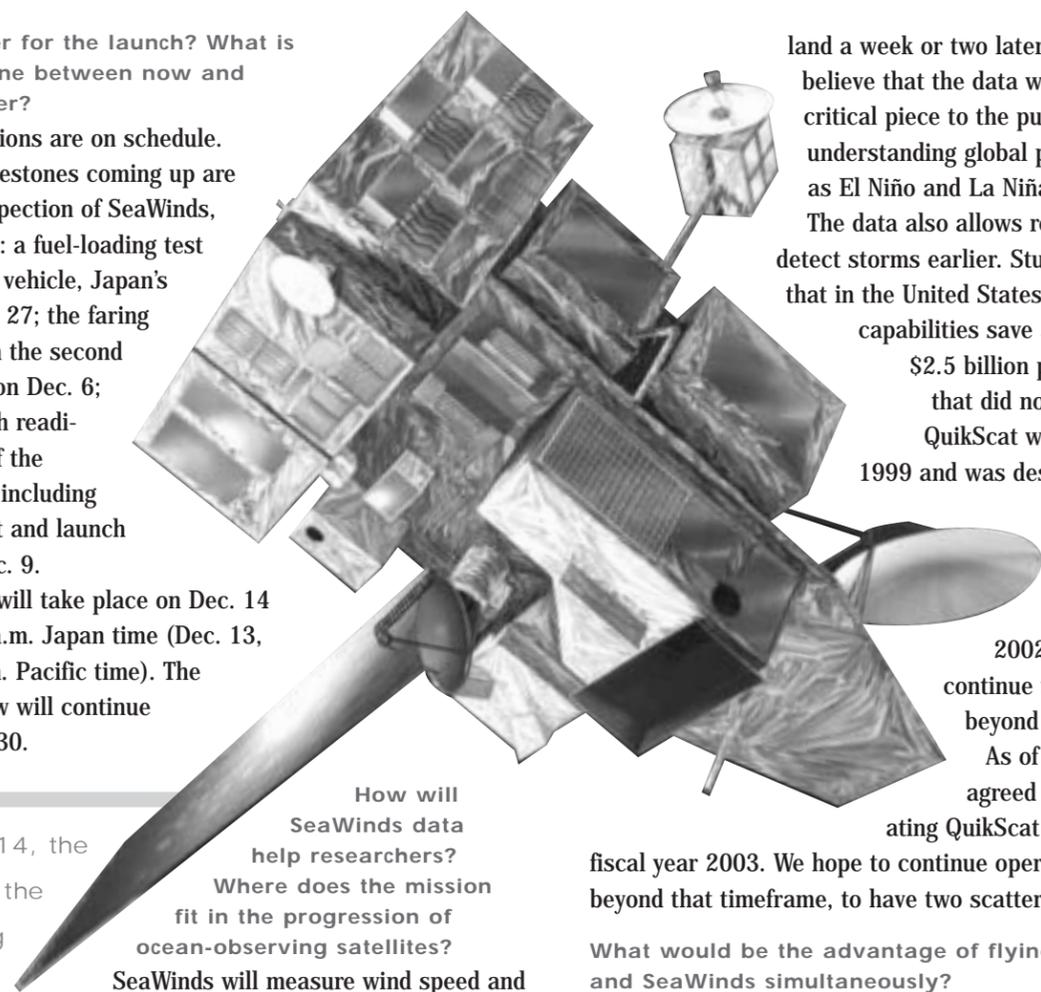
Is all in order for the launch? What is left to be done between now and mid-December?

All preparations are on schedule. The major milestones coming up are JPL's final inspection of SeaWinds, on Nov. 25-26; a fuel-loading test on the launch vehicle, Japan's H-IIA, on Nov. 27; the faring assembly with the second launch stage on Dec. 6; and the launch readiness review of the entire system including the spacecraft and launch vehicle on Dec. 9.

The launch will take place on Dec. 14 10:31-10:47 a.m. Japan time (Dec. 13, 5:31-5:47 p.m. Pacific time). The launch window will continue through Dec. 30.



Set to launch Dec. 14, the mission will continue the quest for better weather forecasting



How will SeaWinds data help researchers? Where does the mission fit in the progression of ocean-observing satellites?

SeaWinds will measure wind speed and direction over the global oceans. The measurements started with the NASA Scatterometer (NScat) in 1996, and are currently being performed by QuikScat.

Understanding the winds over the ocean—both the speed and direction—helps improve our understanding of the global climate and improve global weather prediction. It is this understanding that fits in with the portion of NASA's core mission that is to understand and protect our home planet. Winds affect the weather over the oceans, which in turn affect the weather over

land a week or two later. Our scientists believe that the data will contribute a critical piece to the puzzle of understanding global phenomena's such as El Niño and La Niña.

The data also allows researchers to detect storms earlier. Studies have shown that in the United States early warning capabilities save approximately \$2.5 billion per year in damage that did not occur.

QuikScat was launched in 1999 and was designed to operate for two years, but we crossed the three-year boundary in June 2002. SeaWinds will continue the measurements beyond the QuikScat era. As of now NASA has agreed to continue operating QuikScat through the end of

fiscal year 2003. We hope to continue operating QuikScat beyond that timeframe, to have two scatterometers up there.

What would be the advantage of flying both QuikScat and SeaWinds simultaneously?

Our scientists tell us that if we do have both operating, we will be able to look at phenomena that occur in a timeframe that is shorter than our current observation capability. One example that comes to mind is the ability to identify the formation of hurricanes and typhoons and track their paths.

NASA has currently agreed to allow this overlap for validation and calibration, similar to Jason 1's overlap with Topex/Poseidon.

*Continued on page 3*

## On-Lab parking access to change in January

JPLers are reminded that new criteria for having on-Lab parking access will be effective Monday, Jan. 6, 2003.

The current system of blue background badges and vehicle decals will no longer be used for access to on-Lab parking. New parking hanging tags will supercede the blue stripes on the JPL picture badges and also take the place of window and bumper decals. Employees will continue to use their current badges for identification purposes at JPL and will not need to remove colored parking decals from their vehicle bumpers or windows.

Individuals eligible for on-Lab parking will be issued a "hang-tag" for their rearview mirror. These hang-tags will be color-coded to coincide with JPL's colored decal lots:



green, blue, silver, red and white. Personnel with unassigned on-Lab parking will be issued a tan colored hang-tag.

Hang-tags will also be provided to individuals who have been selected for performance-based on-Lab parking, parking lottery winners and carpool participants.

The parking lottery has been completed and the 500 individual winners will be notified by e-mail in early December. Each winner will receive an orange parking hang-tag that will permit them to park on-Lab in an unassigned parking space for one specific day each week.

In conjunction with the issuance of the hang-tags, the Lab's parking policy is being revised to require all vehicles parked on-Lab (within the gated perimeter) to display a hang-tag or parking pass at all times.

The new parking hang-tags will be distributed by the Parking Office to eligible personnel beginning the second week of December. A variety of hang-tag distribution locations and dates will be published shortly.

# News Briefs

## Elachi receives Takeda Award

JPL Director DR. CHARLES ELACHI was in Tokyo Nov. 20 to receive a Takeda Award for his work in developing spaceborne radar instruments to monitor the global environment.

The awards, established last year by the Takeda Foundation of Japan, honor individuals who demonstrate outstanding achievements in the creation and application of new engineering knowledge to benefit human needs.

Elachi shared his prize for work benefiting the environment with two Japanese researchers. He received half of a monetary award of 100 million yen (about U.S. \$833,000); the other half will be shared by his Japanese co-honorees.



Dr. Charles Elachi at Nov. 20 ceremony in Tokyo.

The Takeda Foundation was established in 2001 by IKUO TAKEDA, founder of instrument manufacturer Advantest Corp.

## Massey honored by Tuskegee

ED MASSEY, manager of the Voyager Interstellar mission and the NASA portion of the Ulysses mission to the Sun, has received the 2002 Outstanding Alumni Award from the Los Angeles chapter of Tuskegee University's alumni association.

Massey, a retired lieutenant colonel in the U.S. Air Force, joined JPL in 1987. He has served as the Voyager/Ulysses manager since 1998. He graduated from Tuskegee in 1966 with a bachelor's degree in electrical engineering and later earned a master's degree in systems management from USC.



Ed Massey

## Lab workshop at women's conference

Women at Work will sponsor the Young African-American Women's Conference on Saturday, Nov. 23, at Pasadena City College, and JPL will participate with a workshop, Galaxy Quest: Career Opportunities in the Earth and Space Science Programs.

The interactive workshop will be held from 8:30 a.m. to 3:30 p.m., and will also focus on NASA/JPL education programs as well as student career opportunities.

Galaxy Quest will be hosted by the JPL Minority Education Initiatives Office. RHONDA JONES, diversity specialist for the Navigator Program, and TOBY SOLORZANO, deputy manager of the Equal Opportunities Program Office, will be on hand.

The conference, which is open to young women ages 12 to 21, will include additional workshops on women in traditional and non-traditional career fields. There will be sessions on how to apply, interview and maintain jobs, and how to advance in the workplace. Exhibitors from educational and employment organizations will also be on site.

For more information on the conference, visit the Women at Work website at [www.womenatwork1.org](http://www.womenatwork1.org).

JPLers interested in contributing in the Galaxy Quest workshop can contact Jones at ext. 4-1562 or via e-mail. To volunteer time in the JPL interactive booth, contact Solorzano at ext. 4-5789 or via e-mail.

## Popular Science honors missions

NASA's unprecedented work in Space Science and Earth Science captured three of Popular Science's "Best of What's New Awards" for 2002.

The Mars Odyssey mission and the twin satellites of the Gravity Recovery

and Climate Experiment (Grace), managed by JPL; and the Aqua spacecraft mission, managed by NASA's Goddard Space Flight Center, were chosen in the Aviation/Space category. Aqua includes the JPL-managed Atmospheric Infrared Sounder experiment system.

Popular Science will feature the 100 winners, chosen in 10 categories, in its December 2002 issue. Popular Science annually reviews thousands of new products and innovations. To win, a product or technology must represent a significant step forward in its category.

## Lab-developed technology honored

An instrument developed for industry as an outgrowth of JPL innovation and work in imaging spectroscopy has been honored by R&D magazine.

The magazine's R&D Innovation 100 award went to Carl Zeiss Inc. for its laser scanning fluorescence microscope, which provides significant advancement in fluorescence analysis, one of the most important techniques in life science research. The microscope provides a new perspective into cell processes at the molecular level in neuroscience, cancer research, and all subdisciplines of cell biology, since it is the first laser scanning microscope that clearly separates and analyzes combinations of fluorescent markers with overlapping characteristics.

The instrument was developed in collaboration with JPL's GREG BEARMAN, chief biological scientist, Biomolecular Systems Research Program, and Caltech colleagues RUSTY LANSFORD and SCOTT FRASER. The trio combined the technologies of two-photon laser scanning microscopy and imaging spectroscopy to unambiguously identify different color signatures as well as conventional dyes. This approach offers the needed ability to concurrently image multiple colored, spectrally overlapping marker proteins within living cells.

Successful entries for the magazine's awards are submitted by an international range of organizations, including universities, private corporations and government labs. During the past few decades, the research community's growing emphasis on technology transfer has boosted the number of joint public-private submissions.

The sole criterion for making the grade is demonstrable "technological significance" compared with competing products and technologies. Issues such as smaller size, faster speed, greater efficiency, and higher environmental consciousness have continued to gain importance in successful award submissions.

## Papers sought for conference

A call for papers has been issued for the International Conference on Space Mission Challenges for Information Technology, to be hosted by JPL next July. One-page abstracts are due Dec. 16.

Novel space information technology papers are solicited from all sectors of the space community, including Earth-orbiting systems, deep-space missions, ground support systems, instruments, science, landers, rovers, and probes. The conference will address all space end-application areas, including civilian, military, and commercial.

All submitted papers will be peer reviewed, and if accepted, require a four- to eight-page manuscript that will be published in a conference proceedings.

The conference will include panel and poster sessions, tutorials, and an exhibition of the latest commercial products and technologies (industry, research labs, and universities).

The conference will be held July 13-16, 2003, at the Pasadena Convention Center. For topic areas, schedule, author information, and general logistics, see the conference website at <http://smc-it.jpl.nasa.gov>.

# Special Events Calendar

## Ongoing Support Groups

**Alcoholics Anonymous**—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

**Caregivers Support Group**—Meets the first Thursday of the month at noon in Building 167-111 (The Wellness Place). Call the Employee Assistance Program at ext. 4-3680.

**Codependents Anonymous**—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

**Gay, Lesbian and Bisexual Group**—Meets the first and third Fridays of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

**Working Parents Support Group**—Meets the third Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

## Friday, November 22

**Von Kármán Lecture Series**—Dr. Richard Terrile, JPL Mars Scout program scientist, will present "Rise of the Machines: Intelligent Robots and Space Exploration" at 7 p.m. in the Vosloh Forum at Pasadena City College, 1570 E. Colorado Blvd. See above listing for further details. This presentation will give an overview of the current and future plans for exploring our solar system with robotic spacecraft. For more information, see <http://www.jpl.nasa.gov/events/lectures/nov02.html> or call Public Services at ext. 4-0112.

## Fri., Nov. 22—Sun., Nov. 24

**Double Infidelity**—The play by Mariavau will be performed by Theater Arts at Caltech Friday and Saturday at 8 p.m., Sunday at 2 p.m. Tickets are \$15. For more information, call (626) 395-4652.

## Saturday, November 23

**Caltech-Occidental College Concert Band**—A free concert will be offered at 8 p.m. in Beckman Auditorium. The featured artist is Jay Easton, who will play one of the largest saxophones ever made, and music by



Shostakovich, Sousa, and Alfred Reed will be included. For more information, call (626) 395-4652.

## Wednesday, November 27

**JPL Toastmasters Club**—Meeting at 5 p.m. in the 167 conference room. Call Roger Carlson at ext. 4-2295 for information.

## Tuesday, December 3

**JPL Genealogy Club**—Meeting at noon in Building 301-271.

## For the record: "Name the Rovers" contest

An article in the Nov. 8 issue of Universe about a contest to name the 2003 Mars Exploration Rovers should have included the following information.

Employees of JPL, Caltech, NASA, Lego or The Planetary Society; their affiliates, organizations, subsidiaries, advertising and promotion agencies and their immediate families; and/or those living in the same household of each, are not eligible for the contest.

For more information, log on to [http://www.lego.com/rovers/contest\\_rules.asp](http://www.lego.com/rovers/contest_rules.asp).

## Wednesday, December 4

**Associated Retirees of JPL/Caltech**—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

## Thursday, December 5

**JPL Gun Club**—Meeting at noon in Building 183-328.

**JPL Stories**—Louis Friedman, executive director of the Planetary Society and former JPL Advanced Programs manager, will present "The Political, Astrodynamic, and Sailing Pursuit of Halley's Comet" at 4 p.m. in the customer service area of the Library, Building 111-104. The United States was the only major space-faring nation that did not send a spacecraft to Halley's Comet. Come hear about the various ideas that were proposed and the political and technical considerations of the time, and why they all failed. For more information about the series, call Teresa Bailey at ext. 4-9233.

## Friday, December 6

**Lionheart**—This all-male a capella ensemble, known for its interpretation of medieval and Renaissance music, will perform at 8 p.m. in Caltech's Beckman Mall. Tickets are \$15 for adults, \$5 for youth school age and under. For more information, call (626) 395-4652.

## Sunday, December 8

**Chamber Music**—Caltech students will perform the Kitty MacDonnell memorial concert at 3:30 p.m. in Dabney Lounge. Admission is free. For more information, call (626) 395-4652.

## Tuesday, December 10

**JPL Stamp Club**—Meeting at noon in Building 183-328.

**Mariner II Anniversary**—The 1962 film "Clouds of Venus," the story of the first spacecraft to fly by and report on Earth's neighbor, will be shown at noon in von Kármán Auditorium.

## Wednesday, December 11

**JPL Amateur Radio Club**—Meeting at noon in Building 238-543.

## Friday, December 13

**Mariner II Anniversary**—The 1962 film "Clouds of Venus," the story of the first spacecraft to fly by and report on Earth's neighbor, will be shown at 2 p.m. in von Kármán Auditorium.

*Continued from page 1*

Speaking of that, how will the SeaWinds measurements be used in concert with those of Jason 1, which studies the ties between the oceans and atmosphere by measuring sea-surface heights? And what about the data provided by the Atmospheric Infrared Sounder (AIRS), which provides a three-dimensional look at the weather?

The data from each of these missions provides a critical piece to understanding the complex puzzle of the global climate.

How long has the instrument been in Japan?

Actually, it was delivered to Japan in March 1999. It was integrated on the ADEOS-II spacecraft in April 1999. Problems with the Japanese H-II launch vehicle and the development of the H-IIA launch vehicle have caused the launch to be delayed a number of times.

# SeaWinds

Have all these delays been hard to deal with for you and the project team?

Yes, for several reasons. First of all, we wanted to make sure we didn't lose our technical people, that they were engaged and felt that they were continuously contributing. We also wanted to keep the morale up and keep the team focused. In some cases, the project was able to share some of our personnel with other projects. However, the bottom line is that dealing with a moving launch date, which you are not controlling, is difficult.

The way Japan approached the launch slips was to have several short-term storage periods, and to make use of the extra time available to conduct additional spacecraft tests.

Fortunately, since we delivered SeaWinds, no major changes have been made. To deal with the launch delays, we needed to make sure the instrument was maintained properly.

JPL built the SeaWinds instrument; what other parts of the mission have been or will be done at JPL?

Various groups have supported and/or will support the mission in the following ways:

- Integration and testing of the instrument with the spacecraft in Japan
- Activating and operating SeaWinds after launch
- Development and operation of the ground system
- Distribution and archiving of data through the Physical Oceanography Distributed Active Archive Center at JPL
- Calibration and validation of the instrument
- Science by JPL scientists from the Ocean Vector Winds Science Team

How does the partnership with NOAA work? Who else is involved in the mission, and who will receive the data?

NASA scientists use the data for research purposes, while NOAA distributes the data to operational organizations.

The NASA ground network, which is managed by the Goddard Space Flight Center, will support the mission with stations in Alaska and Wallops Island in Virginia.

The science team includes investigators at JPL, Goddard and various universities, and there are co-investigators in Europe and Japan. It's really an international team.

NOAA provides an interface with the operational agencies. They receive the data in about 2 1/2 hours, and distribute it to operational users, who to this point have been using QuikScat data for their various applications such as weather models, iceberg tracking and monitoring of hurricanes.

In the U.S., the SeaWinds data will go to the NOAA's

National Environmental Satellite and Information Service. They in turn will deliver the data to a broad range of users and partners. One of those is the National Centers for Environmental Prediction in Maryland for use in their weather forecasting models.

SeaWinds data will also be used at the European Center for Medium-Range Weather Forecasting and other international sites.

Will SeaWinds be able to provide reliable data on severe weather conditions?

Yes. Among others, our data will be used by the U.S. Navy's Joint Typhoon Warning Center and the National Hurricane Center in Miami. Also, more than half of the commercial ships in the world take advantage of weather based vessel routing services, which use QuikScat data, to avoid storms, rough seas and icebergs. It is estimated this information saves about \$300 million per year in shipping operation costs.

SeaWinds is a three-year mission that is projected to last as long as five years. Are any plans in the works for similar missions to follow?

Yes. We are working with NASA on a follow-on to SeaWinds, called the Ocean Vector Winds Mission, which would continue the systematic measurements of ocean winds. We are currently in a risk-reduction phase.

The mission would build an industrial base, so that we would be able to purchase scatterometers from industry at a later date. In the 2011-12 timeframe, there is a potential to launch three scatterometers over a 15-year period. The goal is to make the instrument smaller, lighter and cheaper to manufacture. The measurements will be at least as good as SeaWinds.



Photo by Bob Brown / JPL Photolab

Our scientists believe that the data will contribute a critical piece to the puzzle of understanding global phenomena's such as El Niño and La Niña.

*Moshe Priel,  
SeaWinds project  
manager*

What excites you most about the SeaWinds mission? How will the public notice it?

Well, of course, it's not like a Mars landing mission, which has a lot of public visibility and pizzazz to it. However, I feel that the benefits from the mission will have a direct impact on people's everyday lives.

For example, if we are able to more accurately predict weather three or five days out, it would have an immediate impact on all travelers. If we provide ice maps to fishermen in Alaska and they know where to fish and where not to fish, there is an impact there. If the hurricane center in Miami is able to forecast hurricanes more accurately and earlier, if people have more warning and smaller areas need to be evacuated, then there is an impact.

The same thing applies to shipping lanes. Understanding the climate and the world's weather is not just a problem for the United States. Having an international, multi-agency collaboration really uses all the resources of the world to understand something that is really global in nature.

For more on the SeaWinds mission, log on to <http://winds.jpl.nasa.gov/missions/seawinds/seaindex.html>

## Six employees garner Space Flight Awareness honors



Six JPL employees recently received NASA's Space Flight Awareness award, earning a trip to Kennedy Space Center for the scheduled October launch of Space Shuttle Atlantis.

Honorees, in photo at left, left to right: Jesse Olvera (Section 380), Steve Benskin (274), Jeff Boyer (314), Donna Campbell (100), Becky Klages (215) and Marilyn Morgan (274), along with guest John Beckman, Engineering and Science director, received a VIP tour of KSC as part of the award. Unfortunately, weather conditions delayed the launch of the shuttle.

At JPL, the Space Flight Awareness Program is administered by the Employee Services and Recognition Group. For information, visit <http://eis/sec614/reward/#sfa>.

### Next Universe delayed

Due to the Thanksgiving holiday, the next issue of Universe will be delayed to Friday, Dec. 13. This issue will also be the last of 2002. Universe will resume its normal schedule on Friday, Jan. 3.

View this and previous issues of Universe online <http://universe.jpl.nasa.gov>

### Editor

Mark Whalen

### Design & Layout

Adriane Jach, Audrey Steffan/  
Design Services

### Chief Photographer

Bob Brown/Photo Lab

### Advertising

Susan Braunheim-Kalogerakos

Universe is published every other Friday by the Office of Communications and Education of the Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109.

### Notice to Advertisers

Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser. Items may be combined within one submission. Ads must be submitted on ad cards, available at the JPL Store and the Universe office, Bldg. 111-B29C, or via e-mail to [universe@jpl.nasa.gov](mailto:universe@jpl.nasa.gov).

Ads are due at 2 p.m. on the Monday after publication for the following issue.

All housing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

## Letters

My family and I would like express our gratitude to the Aquarius Project team, Project Formulation Support Team, all our friends at JPL, and the ERC for the kind words and the beautiful plants that were sent following the passing of my brother.

David Durham, Mary Beth Murrill  
and our two boys

## Retirees

The following JPL employees retired in November:

John Biles, 46 years, Section 352; Donald Lord, 41 years, Section 360; Ronald Saunders, 33 years, Section 630; Donald Boyd, 32 years, Section 344; Quy Nguyen, 27 years, Section 381; Francis Mulvehill, 24 years, Section 311; John P. Walsh, 23 years, Section 183; Rodney Rohla, 21 years, Section 910; Gyan Ahluwalia, 17 years, Section 368; Cerini Bess, 16 years, Section 231; Lawrence Avril, 15 years, Section 344; LaDonne Brewer, 15 years, Section 512; Paul Maker, 15 years, Section 384; Rocco Sacramantra; 15 years, Section 336.

## Passings

**PHYLLIS MITTLESTEDT IRVING, 91**, retired former chief operator of the Laboratory's PBX group, died of leukemia Sept. 26. She worked at JPL from 1951-78, and is survived by her husband, Alex Irving.

## Classifieds

### For Sale

BBQ, Weber Genesis Silver A propane gas grill, spec. ordered cobalt blue top, 2 yrs. old, perfect cond., cast iron grates, \$275. 213/700-6288, Matt.

BEDROOM SET, qn. sz., 2 side tables, dresser w/mirror, \$300; TABLE LAMP, white, \$20; CHAIR, rough fabric, walnut trim, \$15; TABLE, lamp sz., walnut, \$20; TV, 19" color; FILE CABINET, 2 drawer, brown metal, \$10. 626/355-6923.

BUNK BEDS, This End Up, solid wood, w/rails, under-bed drawers, converts to two singles, vg cond., \$200. 352-5688.

CHER CONCERT TICKETS, farewell Tour 2002, Dec. 2, Staples Center, section floor risers, row K, seats 3-6 & 1 at \$167.50 section 111, aisle M14, seat 14, 4 tickets at \$95.75. 909/941-2897 or [Pj1mktg@aol.com](mailto:Pj1mktg@aol.com), Paul.

CLOTHES, West African, 2-piece female outfit (skirt and gown), \$100, 3-piece male outfit (gown, pants and top), \$125. 626/969-7377.

CLARINET Yamaha YCL-20, good cond., list price \$600, sell for \$300/obo. 952-8455.

COATS: large men's, wool, with zip-in lining, like new. \$40; sports, large, \$10; SLACKS, 42 waist, \$8-10; SHIRTS, L and XL, short sleeve, \$5-8; new XL, long sleeve, \$8; lost weight. 790-6060.

COFFEE MAKERS, Krups 10-cup, white/gray, like new, \$40 obo; Braun 10-cup, white/black, like new, \$30/obo. 626/791-6101.

COFFEE TABLE, 36", round, solid maple, on rotating pedestal, exc. cond., \$200. 661/252-9378, Rose.

COFFEE TABLE, blk. onyx top with bronze frame, 52" w x 24" d, \$30. 790-6060.

COMPUTER, Intel P4, 1.6 GHz, 256 MB RAM, 40 GB HD, 32 MB Nvidia TNT4 video card, ESS Audio Sound, 22" flat screen monitor (19.7" viewable), software includes Microsoft Windows XP Professional, Microsoft Office XP, Norton Internet Security/Personal Firewall, and Microsoft Visual Studio.net Enterprise Architect Edition (worth over \$800 alone), Logitech infrared mouse, standard keyboard incl., \$2,000/obo.

323/344-9503, Chris.

COMPUTER DESK/CABINET, enclosed, rustic finish, 3 yrs old, perfect cond., holds files, computer system, plenty of storage, \$1,000/obo. 626/287-9433.

DINING ROOM TABLE, formal, 6' x 9' w/2 leaves + 6 chairs, seats gold padded, 2 of chairs have side arms, sturdy oak wood, color medium, mint cond., matching hutch, practically new, \$2,500/both, \$1,500 for each/obo. 626/794-7402.

FILE CABINET, 2 drawer, oak, \$75; TREADMILL, exc. cond., \$150; both exc. cond. 661/252-1873.

HOT TUB, Softub, maroon, older model, runs well, \$550. 248-2931.

MISC: living rm. set, 3-pc., leather \$1,750; steam-trunk w/48 x 30 glass top, \$150; DSL modem & home router, Earthlink, \$50. 626/818-3460.

MOWER, rotary push, Craftsman, \$120/obo. 957-4770.

PHONE, Nokia 8290, charger and car charger, works on Cingular network, \$80; MONITOR, Samsung 900NF flat tube, 19", \$250. 213/700-6288, Matt.

REFRIGERATOR, GE, 21 cu. ft., side-by-side, ice maker, almond color, exc. cond., \$275; DINETTE, set with 4 chairs and Formica top, \$100. 248-9561.

REFRIGERATOR, Whirlpool, 18.2 cu. ft., top freezer, white, auto ice maker, EZ-vue crispers, adjustable glass shelves, 2 yrs old, sacrifice, \$350. 790-4028.

SOFA/SLEEPER, 7 foot, Ethan Allan, very comfortable, good cond. \$100/obo; ARM CHAIR/ottoman \$25, DISHWASHER, under counter, GE, good cond., \$50/obo. 661/296-7789, Linda.

SPA, by Cal Spa, 8 seat, outdoor, 48 jets, complete w/cover, brand new, must sell. 909/948-2340, eves.

STEREO EQUIPMENT, Yamaha; amp, AV-66, 100 X 2 watts; tuner, T-60, 16 AM/FM presets; dual cassette deck, KX-W362; CD changer, CDC-765, (5) disk, speakers, AST S1, bookshelf, full range, Bass Response to 28 Hertz (2); pictures avail., e-mail [seth1834@earthlink.com](mailto:seth1834@earthlink.com), incl. orig. manuals, all in exc. cond., \$1,000/obo. 626/795-1902, Seth.

TABLE AND CHAIR SET, from Pier One, modern, chrome and glass, one blue chair, one green chair, good cond., \$220/obo. 626/795-5590.

TREES: fish tail, 6' tall, \$80/obo; Ficus, braided in 30" plastic pot >10" tall, \$250 obo; Ceramic bowl, gray, 2' diameter with planted geraniums, \$40 obo. 626/791-6101.

VIDEO GAMES, 8 Intellivision orig. cartridges, \$30/all; PLATES, porcelain, 20 collectible, in original boxes, \$15. 626/359-7666.

### Vehicles / Accessories

'01 ACURA CL Type S, exc. cond, w/nav system, 31K mi., orig. owner, white/tan, 5yrs./70K mi left in extended warranty, \$23,500. 661/297-2988, Wayne.

'96 BMW 318 ti hatchback, 1 owner, 53K mi., complete dealer maint. record, manual 5-spd. transmission, 1.9L DOHC, 16-valve, 4-cylinder engine, Calif. edition oversize ragtop sunroof and special alloy wheels, custom Saris bike rack included, power everything, 5 function computer, cruise control split fold down rear seats, \$11,800/obo. 626/791-9768.

'93 CHRYSLER Town & Country, white, 7-pass, auto, leather seats, new shocks & ABS, roof rack, chains, great family car, 117K mi., must sell, \$4,500. 549-1594, Pascal.

'00 COACHMAN Futura, travel trailer, 28 ft, model 2790TB, all welded aluminum frame, very light for its length at 4,366 lbs, sleeps 6, 2 bunks, queen bed, used less than 10 times, covered at all times, \$16,500. 661/255-7958, eves.

'01 FORD Escape XLT, 4 x 4, 3.0L V6, loaded, mocha int/ext, 2 new tires & alignment, svc contract, 29K mi., VG cond., \$18,500/obo. 626/818-3460.

'99 FORD Taurus, like new, low mi., light blue, \$5,200. 626/379-3503.

'99 FORD truck rims, very clean, must see, 5-spoke alum, make offer. 661/297-1185, Ray.

'98 FORD Windstar minivan, 6 cyl., 3.8L, gold/tan, all power, alarm, 10-disc CD, 46K mi., clean, runs well, \$9,000. 661/254-3147.

'95 FORD Aerostar van, v6, 3.0, extend van, red, great cond., \$3,750. 626/379-3503.

'95 FORD Explorer XLT, 4 WD, 4 dr., green/tan, 127K mi., AT, cloth sport seats, CD changer, keyless entry, alloy wheels, plus more, good cond., one owner, \$6,900. 790-5538.

'90 FORD Mustang GT convertible, white, new heads, cooling system, CD player, must see, \$4,000. 626/798-7755.

'89 FORD Econoline 150 van, 85K mi., modified with bubble top, captain's chairs, queen pull out bed, icebox, porta-potty and other features, exc. cond., \$3,900/obo. 790-0566.

'68 FORD Mustang Classic Calif. Special, GT/CS, Hi-Per 302 cid, 75K orig. mi., auto, fac. a/c, PS, AM radio, metallic gold paint, black interior, GT hood, trunk, fogs and wheels, no rust, manuals, turns heads, \$13,250/obo. 626/963-5727.

'97 HONDA Valkyrie motorcycle, exc. cond., extra chrome, garage kept, purple/white, studded seats, leather bags, many accessories, 23K mi., \$8,200. 957-2852.

'94 HONDA Nighthawk, 250cc, 2,500 mi., exc. cond., kept in garage, \$1,500. 562/693-1136.

'91 HONDA Prelude SI, black, drives well, a great car, 235K miles, Kelly Blue Book estimates \$2,925, sell \$2,500/obo. 310/822-8068, leave message.

'90 HONDA AC DX, 5 speed, white, vg cond., am/fm, clean inside, \$2,700. 626/665-3571.

'88 HONDA CRX HF, roof leaks, interior needs TLC, 175K, runs well, \$900. 626/345-0681.

'85 KOUNTRY Lite 5th wheel trailer, 30 ft., orig. owner, alum. frame, 13.5K A/C, side bath, microwave, TV/VCP avail, new tires & water pump, sleeps 6, exc. cond., renewed lic.-Mar. \$6,500/obo. 626/963-5727.

'92 LINCOLN Town Car, Signature Series, exc. cond., \$3,500/obo. 661/288-7953.

'89 LINCOLN Mark VII LSC, beautifully maintained, near mint cond., gold with beige luxury leather interior, same owner from 12,900 miles, current mileage 125,800, mechanically excellent, \$4,750/obo. 323/465-0881, Darryl.

'87 MITSUBISHI van, 7 passengers, captain's chairs, silver, new exhaust, brakes, runs well, 103,000 mi., \$2,500. 248-2931.

'98 NISSAN Frontier XE King cab, clean, perfect maintenance record, new Pirelli tires, battery, and brakes, blue 5-speed, model with power steering, a/c, alloy wheels, bed liner, 73K miles, \$7,500. 687-7673.

'90 PLYMOUTH Grand Voyager, 123K mi., auto trans., power seats, tilt steering wheel, am/fm/cassette, new brakes (front/rear), thermometer/compass ceiling console, power door locks, roof rack, charcoal paint, good cond., \$2,150. 790-5938.

'99 TOYOTA Solara SLE, V6, automatic, 2 dr., black interior/exterior, sunroof, spoiler, leather power bucket seats, a/c, am/fm/cass., CD, power windows/locks/mirrors, cruise control, tilt wheel, driver/pass. airbag, anti-lock brakes, 87,000 mi., immaculate cond., \$10,000. 626/967-3200.

'91 TOYOTA Camry, silver, 4 dr., stick shift, a/c, 4 cyl., runs well, 124K mi., \$2,450. 790-4984.

'88 TOYOTA Camry LE, vg cond., loaded, 134K mi., \$2,500/obo. 731-0470.

'88 TOYOTA Corolla SR-5 Sports Coupe 2 dr., 5-spd., white w/maroon, clean title, 176,000 mi., runs great, AC, AM/FM cassette, cruise, sun roof, brand new alt, 6-mo. old brakes/batt/water pump, BB=\$1,200, sell for \$1,000/firm. 626/355-3657, Jason.

'83 TOYOTA Supra, 25K mi. on rebuilt engine, 5 spd., red, new tires, very battery, am/fm/cass., clean inside and out, very reliable, \$2,100. 957-2852.

'01 VOLKSWAGEN Beetle GLS, silver/black leatherette, 5 spd., pwr locks, windows, & mirrors, cruise, alloys, AM/FM cass, CD changer, fog lights, ABS, remote keyless entry, 11.8K mi., \$15,85K. 626/449-0997.

'00 VOLKSWAGEN Cabrio, garaged, super clean, silver, C/PS/PW/PL/alarms/5sp/CD changer, 75K mi., ext warranty to 85K, \$15K/obo. 805/907-0715.

### Wanted

BEDROOM SET, white, for girl's room, dresser with shelves or cabinets preferred; BABY STROLLER, sturdy. 626/303-2633.

CHESS CLUB volunteers, two afternoons per week 11/18/02 - 2/14/03, for Loma Alta elementary students in Pasadena district, Tue. & Thur. or Wed. & Fri., 3:30 - 5:30 p.m. 626/791-2574.

HOUSING, single or 1 bd., close to JPL, can pay \$550-\$600, move in by Jan. 2003. 323/957-9660.

MOTORCYCLE, adult, off-road, must be running and in gd. shape, pay \$500 max. 626/357-7347.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present. 790-8523, Marc Rayman.

TRADE HOUSE, temporarily, in Virginia for house in La Canada or Pasadena for 12 mo., Va. house is 2 floors, 4 bd., colonial on wooded 0.5 acre lot, prime neighborhood near Vienna Metro Station for Washington DC easy access. 636-6843 or 202/863-2248, Jim Breckinridge.

VOLLEYBALL PLAYERS, coed, no beginners please, Tuesday nights 8 to 10:00 at Eagle Rock High School, \$3/night. 956-1744, Barbara.

### Free

CLEAN FILL DIRT, 35 cu. yds. avail., haul as little or as much as you like, near Los Robles/Jackson, Pasadena. 626/791-3103 or [dtrask6@its.caltech.edu](mailto:dtrask6@its.caltech.edu)

COMPUTER MANUALS, SunOS, exc. cond., loose leaf stored in six 3-ring binders, installation, system admin., commands reference, network-ing, etc. all dated 1985 or '86, most recently used for a Sun 3/60 running BSD 4.1 and OpenWindows, pick them up for free, or for \$10 I will deliver them to JPL for you. 626/296-8623.

KITTEN, gray Tabby, rescued, med length hair, litter trained, healthy, very playful, friendly, mother cat also needs a home, 1 year old. 626/287-9433.

PRINTER, Epson LQ-800 printer w/extra ribbons, perfect working order. 790-8523.

### Lost & Found

Found: WEDDING BAND, gold, found Nov. 4, Bldg. 300-227, describe inscription to claim. Ext. 4-8328.

Found: GLASSES, prescription, small, metal frame, in a blue soft-case "Stussy" brand, found them in west parking lot. Ext. 3-3704.

### For Rent

GLENDALE, 1 bd., 1 ba. back house, walk to Galleria/Brand/Central, 10-15 min from JPL, lots of closet/drawer space, living room w/ fireplace, kitchen w/stove/oven, service area w/washer/dryer, shared patio, no pets, avail. Dec. 2, \$950, incl. water/gas. 545-0455.

LA CANADA, private rm. in home, with private bath, off-street parking, BBQ, pool, full kitchen priv., wash/dry, etc. \$450 +utilities. 952-5430.

LA CRESCENTA house above Foothill, 3 bd., 2 ba., 2 1/2 p, new carpeting, stove, freshly painted inside and outside, newly landscaped, fenced backyard, 2 1/2 car garage, quiet cul-de-sac, no pets, \$2,150. 249-4146, Bob.

LAS VEGAS house in The Lakes, 2 bd., 2 ba., den, 1,250 sq. ft., new carpet in bedrooms, new tile elsewhere, 2-car garage, gardener pd., includes appliances, avail. 12/15, no pets, \$1,050 + \$1,000 sec. deposit. 661/254-6134.

MONTEROSE, large 1 bd., 1 ba. condo to lease in Stancster, near Montrose shops, Vons, theater, hiking trails, grnd. flr. by pool/spa, great shaded patio, wash/dry in unit; fireplace, two gyms, entert. rm., woodshop, 2 pkgng. spots in secure garage, \$1,275. 790-4097.

PASADENA, apt. to share 2 + 2 + loft in luxury security complex near Colorado and Lake, living room, loft and kitchen fully furnished, DSL, balcony, pool, Jacuzzi, gym, \$750. 626/644-5431.

PASADENA, fully furn. 2 bd., 1.5 ba., townhome-style apt. with patio, laundry facilities, parking, near Caltech & JPL, \$1,295; PASADENA, furnished 2 bd., 1.5 ba. apt. to share in same building, avail. in Dec., \$625. 626/351-9641.

PASADENA, nice home for lease, close to Caltech, 2 bd. (one a master suite), 2 ba., large living room, nice kitchen, laundry area, enclosed back yard, 2-car garage, no pets, now smoking, gardener included, \$1,300 + \$1,300 sec. dep. 626/794-0455, call for appt.

PASADENA, back house, 1 bd., 10 min. from JPL, no pets, one person, stove, fridge, micro incl, very clean, \$1,000. 626/795-3608.

PASADENA, spacious 2-story condo, 3 bd., 2.5 ba., prestigious community, beaut. inter., bright ktch., prof. landscape, ctrl. air & heat, close to shop., cozy l/r w/FP, end unit, frml. dr, hdwd. flrs., immac. cond., close to schls, \$1,750. 626/396-9024.

SUNLAND, roommate to share a 3 bd. house in Sevenhills, 10 miles west of JPL, great views, across the street from Mt Lukens, lots of hiking trails and very quiet, will consider couple, child, small pet, share utilities, avail. Dec. 1. 544-2119, day or 425-8550, eve.

### Vacation Rentals

BALBOA ISLAND, fully furnished 2 bd., 1 ba., patio, washer/dryer, parking, steps to bay, \$150/night or \$875/week. 626/351-9641.

BIG BEAR LAKEFRONT, luxury town home, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548.

BRAZIL, beach house in Florianopolis, south of Brazil, 2 bd., 3 ba., fully furnished, cozy, for up to 6 people, gorgeous beaches, great hikes, nature, \$50/day for this summer. 626/644-4795 or check <http://geocities.yahoo.com.br/dri88>.

CAMBRIA, ocean front house, sleeps up to 4, exc. view. 248-8853.

COSTA RICA, Pueblo Real, Quepos, 2 bd., 2ba., condo, fully equipped kitchen, TV, VCR, sleeps 6, air, newly remodeled, large swimming pool, tennis, typical restaurant, near Manuel Antonio, next to river with mangroves and monkeys, close to beach, JPL rates. [luisalfaro@earthlink.net](mailto:luisalfaro@earthlink.net) or 760/723-8522.

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., 4/15-12/14 \$105/nite/2, 12/15-4/14 \$120/nite/2, \$15/nite/add'l person. 949/348-8047, jackandrandy@cox.net.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, sleeps 6-8, fully equipped kitchen incl. microwave, D/W, cable TV, VCR, streams, fishy view to mtns., Jacuzzi, sauna, income, balconys, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/794-0455.

OCEANSIDE, on the sand, charming 1 bd. condo, panoramic view, walk to pier & harbor, pool/spa, game rm., sleeps 4. 949/786-6548.

OCEANSIDE condo, fully furnished, 2 bd., 2 ba., fireplace, full kitchen, quiet, relaxing, in beautiful setting, located at beachside, with barbeque, pool, spa, game room, and great ocean view, easy walk to pier and restaurants, sleeps 8, available weekly or monthly. 909/981-7492 or [dfhaug@yahoo.com](mailto:dfhaug@yahoo.com), Darlene.